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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,528	12/27/2001	Benjamin N. Eldridge	P6C3-US	2563

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EXAMINER

KOBERT, RUSSELL MARC

ART UNIT	PAPER NUMBER
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2829

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/034,528

Applicant(s)

ELDRIDGE ET AL.

Examiner

Russell M Kobert

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 43-74 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43-55 and 58-74 is/are rejected.
- 7) ☒ Claim(s) 56 and 57 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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1. Applicant's arguments with respect to claims 43-55 and 58-74 have been considered but are moot in view of the new ground(s) of rejection.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 43-48, 50-55, 59-61, 63-64, 66-69 and 71-74 are rejected under 35 U.S.C. 102(b) as being anticipated by Roch (3939414).

Roch anticipates a tested semiconductor device produced by a process comprising the steps of:

providing a wafer (see Figure 1, item 15) having a plurality of semiconductor devices (17) thereon, each of said semiconductor devices including a plurality of electrical contact terminals (inherent to microcircuits of any desired type 17, see also col 3, ln 59-62);

providing a probe card assembly (Figure 2), said probe card assembly including a probe card (21) having a plurality of electrical contacts (29), a probe substrate (11) having a plurality of probe elements (see Figure 2, portion of 11 securing ends of cable

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28; col 4, ln 59-61), and an interposer (22) disposed between the probe card and the probe substrate, the interposer allowing relative movement (note directional arrows in Figure 2) between the probe card and the probe substrate while maintaining electrical connections between ones of the electrical contacts and ones of the probe elements (col 4, ln 66 – col 5, ln 7);

contacting said wafer and said probe card assembly such that ones of said electrical contact terminals of said semiconductor devices are in electrical contact with ones of said probe elements (see Figure 2); and

testing said semiconductor devices (purpose of the probe assembly as described in the Summary of the Invention); as recited in claim 43.

As to claim 44, Roch shows (col 2, ln 23-27) the process further comprises aligning tips of said probe elements with said electrical contact terminals.

As to claim 45, Roch shows the aligning tips of said probe elements includes altering an orientation of said probe substrate with respect to said probe card (via movement of slide member 25; col 2, ln 44-50).

As to claim 46, Roch shows the altering comprises moving a moveable element (see item 30 and col 2, ln 51-57 and items 31, 32, 33 and col 4, ln 66 – col 5, ln 7) disposed so as to affect an orientation of said probe substrate with respect to said probe card.

As to claim 47, Roch shows the aligning further comprises aligning said tips with an alignment plate (25).

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As to claim 48, dicing the wafer to singulate the semiconductor devices is anticipated (col 1, ln 18-26).

Roch anticipates a tested semiconductor device produced by a process comprising the steps of:

providing a probe card (21) comprising a plurality of electrical contacts (29);

providing a probe substrate (11) mounted to said probe card and comprising a plurality of probe elements (see Figure 2, portion of 11 securing ends of cable 28; col 4, ln 59-61), ones of said probe elements being in electrical communication with ones of said electrical contacts (col 4, ln 66 – col 5, ln 7);

aligning tips of said probe elements by altering an orientation of said probe substrate with respect to said probe card (col 2, ln 23-27; via slide member 25 see col 2, ln 44-50), said altering comprising moving a moveable element (see item 30 and col 2, ln 51-57 and items 31, 32, 33 and col 4, ln 66 – col 5, ln 7) disposed so as to affect an orientation of said probe substrate with respect to said probe card;

providing a semiconductor device (see Figure 1, item 15);

bringing said tips into contact with said semiconductor device (see Figure 2); and

testing said semiconductor device (purpose of the probe assembly as described in the Summary of the Invention); as recited in claim 50.

As to claim 51, Roch shows the moveable element is threaded (characteristic of screws 30, 31, 32, 33).

As to claim 52, Roch shows the moveable element comprises a screw (items 30, 31, 32 and 33 are screws).

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As to claim 53, Roch shows at least one differential screw (31 comprised of interaction with stud 64; col 6, ln 19-21).

As to claim 54, moving the movable element in a first direction causes at least a portion of the probe substrate to move toward the probe card (col 6, ln 52-58).

As to claim 55, moving the movable element in a second direction allows at least a portion of the probe substrate to move away from the probe card (col 6, ln 52-58).

As to claim 59, the probe elements disclosed in Roch are inherently elongate and resilient.

As to claim 60, Roch anticipates the step of aligning tips of the probe elements to be planarized with respect to the electrical contact terminals of the semiconductor device (col 1, ln 65 – col 2, ln 9).

As to claim 61, the movable element comprises a pivot structure (65 in cooperation with 66).

As to claim 63, the movable element comprises a sphere (65).

As to claim 64, the movable element comprising a differential screw having an outer threaded portion and an inner threaded portion is considered an inherent characteristic of the movable element (31).

As to claim 66, the probe elements disclosed in Roch are inherently elongate and resilient.

As to claim 67, Roch anticipates the step of aligning tips of the probe elements to be planarized (col 1, ln 65 – col 2, ln 9).

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As to claim 68, Roch anticipates the step of aligning tips of the probe elements to be planarized with respect to the electrical contact terminals of the semiconductor device (col 1, ln 65 – col 2, ln 9).

As to claim 69, the movable element comprises a pivot structure (65 in cooperation with 66).

As to claim 71, the movable element comprises a sphere (65).

As to claim 72, having the differential screw comprising an outer threaded portion and an inner threaded portion is considered an inherent characteristic of the movable element (31).

As to claim 73, the probe substrate is floatingly mounted (via spring 27) to the probe card.

As to claim 74, Roch anticipates the probe substrate mounted to the probe card with a biasing force while the movable element is configured to apply a force in opposition to the biasing force (col 6, ln 46-68).

4. Claims 50, 65-68 and 73-74 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Grabbe (4969826).

5. Claims 43-55 and 58-74 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Abe et al (5521522).

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6. The following is a statement of reasons for the indication of allowable subject matter:

Claims 56 and 57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The method according to claim 56, wherein the altering comprises actuating a servo mechanism disposed to alter a position of the probe substrate with respect to the probe card and the method according to claim 57, wherein the altering comprises actuating a piezoelectric actuator disposed to alter a position of the probe substrate with respect to the probe card have not been found.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

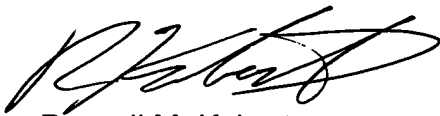


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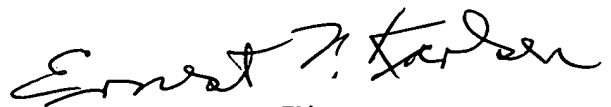
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kobert whose telephone number is (703) 308-5222.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Russell M. Kobert  
Patent Examiner  
Group Art Unit 2829  
July 3, 2003



ERNEST KARLSEN  
PRIMARY EXAMINER